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MACHINE-READABLE VERSION OF THE LICK
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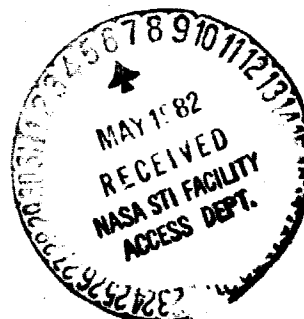


National Space Science Data Center/
World Data Center A For Rockets and Satellites

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MACHINE-READABLE VERSION OF THE
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DOCUMENTATION FOR THE MACHINE-READABLE VERSION
OF THE LICK JUPITER-VOYAGER REFERENCE STAR
CATALOGUE

Wayne H. Warren Jr.

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National Space Science Data Center (NSSDC)/
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National Aeronautics and Space Administration
Goddard Space Flight Center
Greenbelt, Maryland 20771

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SECTION 1 - INTRODUCTION

The *Lick Jupiter-Voyager Reference Star Catalogue* (Klemola, Morabito and Taraji 1978) was prepared for purposes of determining up-to-date, reasonably accurate, equatorial coordinates for reference stars in a band of sky against which cameras of the Voyager spacecraft were aligned for observations of Jovian satellites during the flyby. The requirements were for 3-4 reference stars per observation frame of 24 arcmin^2 of the cameras, a number somewhat greater than that provided by the AGK3 (Dieckvoss et al. 1975), with an accuracy of $\sim 0.5 \text{ arcsec}$. Visual magnitudes were also required. The completed catalogue contains 4986 stars in the right ascension range $8^{\text{h}} 04^{\text{m}}$ to $8^{\text{h}} 31^{\text{m}}$, declination zones $+16^\circ$ to $+23^\circ$ and $8^{\text{h}} 31^{\text{m}}$ to $8^{\text{h}} 57^{\text{m}}$, zones $+08^\circ$ to $+14^\circ$. Mean errors of the positions, as derived from least squares solutions against the AGK3 reference stars, are about 0.4; however, individual residuals are fairly numerous at $0.6 - 0.8$, with some in the range 1.0 to 1.3 . Apparent photographic and visual magnitudes were derived from iris photometer measurements, m_v being approximated from a derived color-index relation using the AGK3 stars. The resulting magnitudes appear to have mean errors of at least 0.2 , while very blue and very red (C.I. ≤ 0.0 , ≥ 1.5 , respectively) are less certain. The magnitudes are considered to be only approximate (residuals ~ 0.5 fairly common).

This document is intended to describe the machine-readable version of the *Lick Jupiter-Voyager Reference Star Catalogue*, in order that users can avoid the common difficulties, uncertainties and guesswork frequently encountered when processing a computerized catalogue. The original publication (available from A. R. Klemola) should be consulted for additional details concerning the observations and reductions. A copy of this paper should be distributed with any secondary copies of the machine version sent to other installations.

REFERENCE

Klemola, A. R. (Lick Obs.), Morabito, L. and Taraji, H. (Jet Propulsion Lab.) 1978, *Lick Jupiter-Voyager Reference Star Catalogue*, Lick Observatory, University of California, Santa Cruz.

SECTION 2 - TAPE CONTENTS

A byte-to-byte description of the contents of the machine-readable catalogue is given in Table 1. The suggested format specifications are given primarily for locating decimal points and can be modified depending upon usage. Care must be exercised when processing the magnitude and proper-motion data, since fields missing data are blank and will be read as zeroes unless initially buffered in or processed with an A (character) format and tested. Unless indicated otherwise, a given field always has a data value in it.

Table 1. Tape Contents. Lick Jupiter-Voyager Reference Star Catalogue

Byte(s)	Units	Suggested Format	Description
1- 4	---	I4	Lick plate pair identification.
5- 8	---	I4	Plate number.
9-10	hours	I2	Right ascension (α), epoch 1978.27, equinox 1950.0
11-12	min.	I2	α
13-18	sec.	F6.3	α
19	---	A1	Sign of declination zone.
20-21	°	I2	Declination (δ), epoch 1978.27, equinox 1950.0.
22-23	'	I2	δ
24-28	"	F5.2	δ
29-33	mag	F5.2	Apparent photographic magnitude m_b (blank for two stars).
34-38	mag	F5.2	Apparent visual magnitude m_v .
39	---	A1	AGK3 zone sign.
40-41	---	I2 (A2)	AGK3 zone.
42-46	---	I5 (A5)	AGK3 number. Data field blank for non-AGK3 stars.

Table 1. (continued)

Byte(s)	Units	Suggested Format	Description
47-51	arcsec	F5.1	Centennial proper motion in right ascension, μ_{α} , taken from AGK3 catalogue (blank for missing data).
52-56	arcsec	F5.1	Centennial proper motion in declination, μ_{δ} , taken from AGK3 catalogue (blank for missing data).

SECTION 3 - TAPE CHARACTERISTICS

The information contained in Table 2 is sufficient for a user to read the machine version of the catalogue. Information which is easily varied from installation to installation, such as block size (physical record length), blocking factor (number of logical records per physical record), total number of blocks, tape density, number of tracks, and coding (EBCDIC, ASCII, BCD, etc.) is not included. These parameters should always be supplied if secondary copies of the tape are transmitted to other users or installations.

Table 2. Tape Characteristics. *Lick Jupiter-Voyager Reference Star Catalogue*

NUMBER OF FILES	1
LOGICAL RECORD LENGTH	56
RECORD FORMAT	FB*
TOTAL NUMBER OF LOGICAL RECORDS	4986

* fixed block length (last block may be short)

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SECTION 4 - REMARKS, MODIFICATIONS, ACKNOWLEDGMENTS AND REFERENCES

A magnetic tape containing the catalogue, in binary format, was received from Dr. A. R. Klemola in November 1981. The data were converted to character format and written to a direct access device for editing, which consisted of adding signs to all positive declination zones, converting missing data from zeroes to blanks, and changing all AGK3 numbers to the uniform representation $\pm XX XXXX$. The catalogue was then transferred back to magnetic tape in character format with a logical record length of 56 bytes, after sorting the complete data set by increasing right ascension (the stars were originally arranged in some kind of plate or measurement order).

ACKNOWLEDGMENTS

Appreciation is expressed to A. R. Klemola for providing the magnetic tape of the catalogue and for reviewing the modifications made and the resulting documentation.

REFERENCES

- Dieckvoss, W., Kox, H., Gunther, A. and Brosterhus, E. 1975, AGK3. *Star catalogue of positions and proper motions north of $-2^{\circ}5$ declination, derived from plates taken at Bergedorf and Bonn in the years 1928-1932 and 1956-1963*, Hamburger Sternwarte, Hamburg, Bergedorf.
- Klemola, A. R., Morabito, L. and Taraji, H. 1978, *Lick Jupiter-Voyager Reference Star Catalogue*, Lick Observatory, University of California, Santa Cruz.

SECTION 5 - SAMPLE LISTING

The sample listing given on the following pages contains logical data records exactly as they are recorded on the tape. Groups of records from the beginning and end of the catalogue are illustrated. The beginning of each record and bytes within the record are indicated by the column heading index (digits read vertically) across the top of each page.

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